METHOD FOR MANUFACTURE OF MAGNETO-RESISTIVE BIT STRUCTURE

Reference to Related Application

[0001] This application is a divisional of U.S. Patent Application No. 09/999,684, filed October 30, 2001, now Patent No. 6,711,194

Field of the Invention

[0002] The present invention relates to magneto-resistive memories, and more particularly to magneto-resistive bit structures and method of manufacture therefor.

Background of the Invention

[0003] Magneto-resistive memories are non-volatile. That is, the data stored in the memory are maintained even if power is lost or otherwise interrupted. Typical magneto-resistive memories use variations in the magnetization direction of a thin film of ferromagnetic material to represent and to store a binary state. Each thin film of ferromagnetic material can be referred to as a magneto-resistive bit. During a write operation, the magnetization direction of a selected bit structure is set by passing an appropriate current near the selected bit structure, often using a word line and/or digital line and/or sense current. The current produces a magnetic field that sets the magnetization direction of at least one of the layers in the ferromagnetic film in a desired direction. The magnetization directions dictate the magneto-resistance of the film. During a subsequent read operation, the magneto-resistance of the film can be read by passing a sense current through the bit structure via a sense line or the like.

[0004] Some prior art magneto-resistive bit structures are shown and described in U.S. Patent No. 4,731,757 to Daughton et al. and U.S. Patent No. 4,780,848 to Daughton et al., both of which are assigned to the assignee of the present invention and both of which are incorporated herein by reference. Illustrative processes for forming such magnetic bit structures are shown and described in U.S. Patent No. 5,569,617 to Yeh et al. and U.S. Patent